

PENDANT WITH A RETRACTABLE AND CUSTOM-FIT CHAIN

Background of the Invention

[0001] This invention relates to jewelry, such as pendants, with a tether, such as a chain, rope, belt,
5 fish line or the like, that can be manually adjusted to better fit a user.

[0002] Pendants have been around for hundreds, if not thousands, of years. A user that owns multiple pendants will sometimes store these pendants in the
10 same container such as in a jewelry box. When stored in the same location, however, the chains of the pendants will occasionally tangle, thus becoming difficult to separate. Additionally, if enough pieces of jewelry are tangled together then it may be
15 difficult to locate a specific piece of jewelry. It is therefore desirable to create a piece of jewelry, such as a pendant, with a chain that will not tangle with nearby jewelry chains.

[0003] Traditional jewelry chains are of a fixed
20 size. If a pendant chain does not have the appropriate length then the user has to either add/remove links in the chain or purchase a new chain of the appropriate

length. It is therefore desirable to create a pendant with a chain that has an adjustable length.

[0004] Watch housings are tethered to a user by means of a band. This band is adjustable. More particularly, the band has female connectors (i.e., holes in the band) that receives a male connector connected to the watch (e.g., metal prong extending from a watch buckle) to securely tether the watch housing to user's having different wrist sizes.

10 However, watches are deficient in that the number of female connectors are spaced far apart and are limited in number. It is therefore desirable to provide a jewelry tether that can be adjusted to any length that is not limited to spaced-apart predetermined lengths.

15 [0005] Additionally, when a watch band is tethered to a user, an unused portion of the band will extend out of the watch's buckle. This unused portion is the portion of the band from the end of the band to the female connector being used by the buckle. This unused

20 portion only detracts from the watch's visual appeal and can occasionally be physically troublesome to the user. For example, if the unused portion is long enough it can wipe against the user's wrist and irritate it. For this reason, a securing loop is

25 occasionally provided on the watch band to secure the unused portion of the band. This securing loop only increases the cost of the watch. It is therefore desirable to provide a watch, or other types of jewelry housing, that do not have unused portions that are

30 visible, or can be psychically irritating, to the user. It is also therefore desirable to eliminate the need for a securing loop on the exterior of a watch band.

Summary of the Invention

[0006] It is an object of the present invention to realize jewelry with retractable, custom-fit tethers. Such tethers could include any mechanically flexible material such as, for example, a band, belt, fish line, chain (e.g., a chain made up of non-mechanically flexible links), or rope. Jewelry that may benefit from the retractable, custom-fit tethers may include, for example, pendants, watch housings, necklaces, anklets, rings, bracelets, and any other type of jewelry or device that is occasionally attached to a user's body (e.g., cellular phone).

[0007] In one embodiment, a pendant is provided with a chain that can self-retract into the pendant. To obtain a chain of any particular length, the user may pull the chain out from inside the pendant and initiate a locking mechanism that locks the chain at a particular length so that the chain neither self-retracts or can extend further from the pendant. The user can then attach the loose end of the chain to the pendant itself. In this manner, a stable and strong loop is formed that properly can fit around (e.g., tether itself to), for example, the user's neck, wrist, or ankle. When a user is finished wearing the pendant, the user can release the locking mechanism and the chain self-retracts into the pendant. A user may also adjust the length of the pendant's chain while the user is wearing the pendant. In such a scenario, the user can release the locking mechanism, use physical force to overcome any self-retracting forces pulling the chain (e.g., if the length of the chain needs to be increased), draw the chain to a new length, and then switch the locking mechanism back ON.

[0008] The pendant may alternatively include components to allow the pendant's chain to be manually wound into a storage compartment residing in the pendant itself. Such embodiments will typically not have self-retracting forces present when the chain is extended and the self-locking mechanism is turned OFF.

[0009] As in yet another embodiment, the chain may be stored in a storage compartment that resides in the pendant itself and that is accessible to a user (e.g., a user can open the storage compartment). Fastening mechanisms are placed in the pendant that can attach to a portion of the pendant's chain. In this manner, a chain of a fixed length may be adjusted by a user by adjusting which portions of the pendant's chain are attached to the fixing mechanisms. The storage area then holds the unused portion of the pendant's chain so that it is not visible, or physically irritating, to the user.

Brief Description of the Drawings

[0010] The above and other objects and advantages of the present invention will be apparent upon consideration of the following detailed description, taken in conjunction with accompanying drawings, in which like reference characters refer to like parts throughout, and in which:

[0011] FIGS. 1A-1C are perspective views of a pendant with a self-retractable chain constructed in accordance with the principles of the present invention;

[0012] FIGS. 2A-2B are perspective views of a pendant with a manually-retractable chain constructed

in accordance with the principles of the present invention; and

[0013] FIGS 3A-3B are perspective views of a pendant with fasteners constructed in accordance with the principles of the present invention.

[0014] FIG. 4 is a perspective view of a pendant with an electric motor constructed in accordance with the principles of the present invention.

10 Detailed Description

[0015] FIG. 1 shows pendant 100 in which self-retractable chain 102 resides. Chain 102 may be pulled out of pendant 100 (or a chain 102 housing internal to pendant 100), through aperture 101, and attached to fixture 104 by attachment 103. Locking mechanism 105 may be included that controls when the length of chain 102 is locked in place or extendable from outside aperture 101 (i.e., adjustable).

[0016] Locking mechanism 105 may have an ON and OFF position. When locking mechanism 105 is ON, for example, additional portions of chain 102 may not be removed from, or self-retracted into, aperture 101. When locking mechanism 105 is OFF, for example, additional portions of chain 102 may be removed from, or self-retracted into, aperture 101.

[0017] FIG. 1B shows the general internal components of pendant 110. More particularly, pendant 110 includes self-retracting mechanism 116 that rotates around axle 117. Chain 111 is preferably attached to self-retracting mechanism 116 at one end and spooled around self-retracting mechanism 116. Self-retracting mechanism 115 may be operable to allow chain 111 to be pulled through aperture 113 such that chain 111

unspools around axle 117 in direction 115. Self-retracting mechanism 116 is configured to self-retract in the direction opposite to direction 115 such that chain 111 respools around axle 117.

5 **[0018]** Locking switch 114 controls when the length of chain 111 outside of aperture 113 is locked in place and cannot be removed from or self-retracted into pendant 110. Locking switch 114 may be mechanical in nature such that switch 114 physically locks a portion
10 of chain 111 about sidewalls 112 that create aperture 113. Persons skilled in the art will appreciate that numerous types of mechanical and electrical locking mechanisms may be employed in pendant 110. One example of an electrical locking
15 mechanism may be an electrical switch that controls an electrical motor that rotates axle 117. In such an embodiment, switch 114 may have three positions that each relate to a different functionality. One position may be associated to a LOCK function that locks axle
20 117 in place. A second position may be associated to a RETRACT function in which a motor spools chain 111 around axle 117. A third position may be associated to, for example, a FEED function in which a motor unspools chain 111 from axle 117.

25 **[0019]** Persons skilled in the art will appreciate that chain 111 does not have to be a chain. Instead, chain 111 may be any type of tether such as, for example, a belt, band, chain, or rope. Additionally, pendant 110 may be provided in any shape. For example,
30 pendant 110 may be provided in any shape (e.g., a heart, diamond, or sphere). Additionally, self-retracting mechanism 116 may be either mechanically or electrically driven. Attachment 119 may be attached to

fixture 118. Attachment 119 and fastener 118 may be, for example, a clip and a clip-fastener. However, persons skilled in the art will appreciate that attachment 119 and fastener 118 may be a variety of mechanisms that can be temporarily attached together. For example attachment 119 and fastener 118 may be employed as a buckle.

[0020] One example of a locking mechanism formed from sidewalls 112 and switch 114 is shown in locking mechanism 130. Here, sidewall 114 catches teeth on switch 114 as portion 121 of switch 114 slides across guide rail 122. Switch 114 may be unlocked when a user presses down against spring 124 and slides switch 114 away from chain 111 (with the help of optional spring 126). Persons skilled in the art will appreciate that any type of locking or securing mechanism may be utilized to lock chain 111 in place. For example, a switch may be included to simply stop axle 117 from rotating.

[0021] FIG. 1C shows pendant interior 120 that is defined by housing 129 that provides storage space 128. Pendant interior 120 illustrates one example of a mechanical self-retracting system. This mechanical self-retracting system is based on the employment of spiral spring 121. As chain 126 is pulled out from pendant interior 120, spiral spring 121 stores energy as it compresses towards axle 123. Spiral spring 121 is attached at one end to axle 123 and to spool housing 125 at the other end (at point 124).

[0022] Chain 126 is attached at end 130 to spool 125. Thus, as chain 126 is pulled from interior housing 128, spool 124 rotates around axle 123 and spiral spring 124 starts to compress about axle 123.

If enough of chain 126 is pulled from interior housing 128 then spiral spring 121 may reach a compression about axle 123 such that a majority of spiral spring 121 is compressed within compression area 122. If a
5 user lets go of the chain (and the locking mechanism is OFF) then a force will not be exerted on chain 112 to overcome the force created by the energy stored in spiral spring 121. As a result, spiral spring 121 will begin to uncompress (unspiral) and will release any
10 stored energy by bringing spool 125 back to a neutral position (i.e., a position when no energy is stored in spiral spring 121). While spool 125 is returning to a neutral position, chain 126 will self-retract around spool 125.

15 **[0023]** FIG. 2A shows pendant 200 with a manually retractable chain 220. Clip 230 is attached to one end of chain 220 and may be fasted to fixture 240. Chain 220 may be removed from pendant 200 through aperture 210 and may contain a locking mechanism (not shown)
20 that will prevent chain 220 from either being removed from, or fed back into, the pendant.

[0024] Pendant 220 includes a manual winding mechanism 201 that can be turned to spool chain 220 around an axle (not shown). By spooling chain 220,
25 chain 220 will be pulled into the pendant and the length of chain 220 outside of the pendant will be reduced. For example, manual retracting mechanism 201 may be configured such that rotating mechanism 201 in direction 203 will reduce the length of chain 220
30 outside of the pendant. To assist in turning mechanism 201, grip 204 may extend from mechanism 201. Alternatively, impression 212 may exist on mechanism 212 to assist a user trying to rotate mechanism 212.

[0025] FIG. 2B shows pendant interior 240 for a pendant with a manually retractable chain. Spool 254 is, preferably, mechanism 202 from FIG. 2A. Thus, turning mechanism 202 from FIG. 2A turns spool 254.

5 Chain 254 is attached at one end to spool 254. Clip 255 is preferably larger than aperture 254 such that chain 254 does not retract completely into pendant interior 250.

[0026] FIG. 3A depicts pendant 300 that does not
10 have a retracting mechanism. Pendant 300 allows for the length of chain 304 outside of pendant 300 to be adjusted by merely adjusting washers 309. Washers 309 are preferably rubber and constructed to fit tightly around chain 304 such that they are only moved when a
15 user directly exerts force to move them. Washers 309 are also preferably larger than apertures 308 such that washers 309 stop chain 304 from exiting pendant 350 through apertures 308 at the point in which washers 309 are fixed to chain 304. Alternatively, apertures 308
20 may be formed by housing 301 and housing portions 306. In this manner, chain 304 may not be detached from pendant 350. However, aperture 308 may also be formed by housing 301 (without portions 306) and pendant lid 305.

25 [0027] Housing 301 includes storage space 302 in which excess portions of chain 304 that are not being used by the user are stored. Housing 301 and lid 305 may be attached by, for example, hinge 303 and may be locked together by a locking mechanism (not shown).

30 [0028] FIG. 3B shows pendant 350 which opens across hinges 353 and contains a storage area in housing 351 similar to pendant 300 of FIG. 3A to store chain 352. Persons skilled in the art will appreciate that

alternative means of determining the length of chain 352 may be included instead of washers 309 from FIG.

3A. For example, a locking mechanism may be incorporated about the apertures formed around hinges 5 353 to lock chain 352 in place when pendant 350 is closed.

[0029] Fig 4. shows jewelry 400 with chain 402 that is extendable around axle 404 by an electric motor. Chain 402 is attached to spindle 403 at point 401 and 10 is extendable through aperture 405 by means of electric motor 453. Motor 453 is powered by battery 451 and is turned ON and OFF by switch 452. When motor 453 is turned ON, axle 454 may begin to turn. Axle 454 may, in turn, may directly turn axle 404 either by itself or 15 with the inclusion of one or more gears (not shown).

[0030] Alternatively, aperture 406 may be defined in spindle 403 such that it is in line with axle 404 such that axle 454 rotates spindle 403 about axle 404. In such an embodiment, for example, axle 404 is not 20 necessary because axle 454 becomes the axle upon which spindle 403 rotates upon.

[0031] Chain 402 can attach to the exterior of housing 407 by means of connector 406. Indentations 409 may be included in the exterior of housing 407 to 25 form a structure upon which connector 406 may attach to. For example, rod 410 may be formed.

[0032] Persons skilled in the art will appreciate that no locking mechanism is necessary in jewelry 400. To retract chain 402, motor 453 may be configured to 30 rotate axle 454 in a direction opposite that when axle 454 extends chain 402. In this embodiment, switch 454 may have more than two positions. Switch 454 may have an EXTEND, RETRACT, and OFF position. To reverse the

direction that motor 453 is moving, for example, the terminals of motor 453 that battery 451 is touching may be reversed (electrical configuration not shown) such that motor 453 receives an opposite polarity.

5 Alternatively, a second battery (not shown) may be selectable through a switch that provides an opposite polarity of voltage across the power terminals of motor 453. A second spindle and chain 475 may also be included that is also extendable with a tether that can
10 be connected to chain 402. In including a second chain, the power of each motor (or the size of each spiral spring) is reduced.

[0033] From the foregoing description, persons skilled in the art will recognize that this invention
15 provides jewelry with chains that can be resized. These principles may be employed in any type of wearable jewelry. For example, these principles may be applied to wrist watches to embody a wrist watch with a retractable chain. In addition, persons skilled in the
20 art will appreciate that the various configurations described herein may be combined without departing from the present invention. For example, a piece of jewelry may be configured to include both a self-retracting mechanism and a manual-retracting mechanism without
25 departing from the principles of the present invention.

[0034] It will also be recognized that the invention may take many forms other than those disclosed in this specification. Accordingly, it is emphasized that the invention is not limited to the disclosed methods,
30 systems and apparatuses, but is intended to include variations to and modifications thereof which are within the spirit of the following claims.